

***Remarks***

Reconsideration of this Application is respectfully requested.

Claims 21-25 and 32-36 are pending in the application, with claims 21 and 36 being the independent claims. Claim 21 is sought to be amended. New claim 36 is sought to be added. Applicant reserves the right to prosecute similar or broader claims, with respect to the amended claim, in the future. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendments and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding rejections and that they be withdrawn.

***Obvious-Type Double Patenting Rejection***

In the July 7, 2009 Final Office Action, claims 21-25 and 32-35 were rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1, 3, and 9 of U.S. Patent No. 7,006,806 (“the ‘806 patent”). (See Final Office Action, pages 5-7.)

Applicant respectfully requests that the currently asserted double patenting rejection be held in abeyance until claimed subject matter is otherwise deemed allowable. After analyzing the final allowed claim scope, Applicant will consider filing a terminal disclaimer if necessary to overcome an obviousness-type double patenting rejection.

***Rejection under 35 U.S.C. § 103***

Claims 21-25 and 32-35 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,404,405 to Collier *et al.* (“Collier”) in view of U.S.

Patent No. 4,716,589 to Matsui (“Matsui”), and in further view of U.S. Patent No. 6,002,726 to Simanapalli *et al.* (“Simanapalli”). Applicant respectfully traverses the rejection, the Response to Arguments on pages 7 and 8 of the Final Office Action, and the Advisory Action.

Without acquiescing to the propriety of the rejection, independent claim 21 has been amended to recite features that distinguish over the applied references. For example, amended claim 21 recites, among other features, “a denominator device that estimates a value of  $1/X(n)$  based at least in part on a prior estimated value of  $1/X(n)$  ***and a variable transition speed of X(n)[.]***” (Emphasis added).

In the Final Office Action and Advisory Action, the Examiner relies only on Simanapalli to allegedly teach at least the above-noted distinguishing feature. Applicant respectfully disagrees.

Applicant submits that Simanapalli *cannot* disclose the claimed “a denominator device that estimates a value of  $1/X(n)$  based at least in part on ... a ***variable*** transition speed of  $X(n)$ .” This is because Simanapalli *requires* that the sampling rate (*transition speed of X(n)*) as alleged by the Examiner) be sufficiently high and remain sufficiently high (*i.e.*, essentially constant) such that the envelope changes between adjacent samples are very small. For example, Simanapalli teaches the equations given in operational block 78 of Figure 3 ***only hold true when*** “the envelope changes between adjacent samples are very small if the sampling rate is sufficiently high[.]” (See Simanapalli, column 5, lines 34-52). Additionally, Simanapalli does not disclose any scaling coefficient or compensation variable to compensate for a variable transition speed of  $X(n)$  as in Applicant’s claims. Thus, Simanapalli teaches of wanting substantially no speed changes of  $X(n)$  since Simanapalli teaches of trying to

maintain very small envelope changes between adjacent samples. Likewise, the use of the phrase “sampling rate” in Simanapalli inherently discloses a constant sampling time interval, with no variability. This teaching in Simanapalli is fundamentally different from at least the above-noted distinguishing feature of amended claim 21.

Therefore, Applicant submits that because the disclosure of Simanapalli only holds true when the *sampling rate* is sufficiently high and remains sufficiently high (*e.g.*, substantially no speed changes of  $X(n)$  as noted above), Simanapalli does not disclose “a denominator device that estimates a value of  $1/X(n)$  based at least in part on ... *a variable transition speed of X(n)*” as recited in amended claim 21 (emphasis added).

For at least the foregoing reasons, as Simanapalli does not cure the deficiencies noted by the Examiner in Collier and Matsui, amended independent claim 21 is patentable over the combination of Collier, Matsui, and Simanapalli. Dependent claims 22-25 and 32-35 are similarly patentable over the combination of Collier, Matsui, and Simanapalli for at least the same reason as claim 21, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 21-25 and 32-35.

As discussed, the dependent claims are also patentable. For example, claim 35 recites, in part, “wherein the value of the scaling coefficient is based on the transition speed of  $X(n)[,]$ ” so that the claimed denominator device compensates for changes in the “variable transition speed of  $X(n)$ .<sup>1</sup> Based on the claimed change in transition speed of  $X(n)$  (*i.e.*, be *variable*) in claim 21, claim 35 recites a compensation variable based on the changing transition speed of  $X(n)$ . In contrast, Simanapalli teaches requiring the sample rate to remain substantially high (and inherently substantially constant) such that the envelope changes

remain very small. Thus, the reference cannot be used to disclose at least the features of claim 35.

***New Claim***

Applicant respectfully submits new claim 36 is allowable. For example, none of the cited references teach or suggest at least “the FM demodulator including a denominator device that estimates a value  $1/X(n)$  based at least in part on a prior estimated value of  $1/X(n)$  and an error value substantially equal to  $[1-X(n)/X(n-1)]$ ; ..., wherein the error value is scaled by a value of a scaling coefficient based on the transition speed of  $X(n)$  before being added to the prior estimated value of  $1/X(n)[,]$ ” as recited in claim 36. New claim 36 recites subject matter similar to previously pending claims 21, 34, and 35.

Claims 34 and 35 were rejected in the July 7, 2009 Final Office Action by the Examiner, who stated that neither Collier nor Matsui disclosed the features of claims 34 and 35, but rather relied on Simanapalli. Applicant disagrees.

In the rejection of claims 34 and 35, the Examiner points to Simanapalli’s Figure 3 component 78 and Figure 2. However, neither of these Figures nor their associated written description disclose a scaling coefficient or a scaling coefficient based on the transition speed of  $X(n)$ . Simanapalli does disclose a scaling factor, but it is a normalizing scaling factor for  $X(n)$  and is not associated with scaling of an error value. And without conceding that Simanapalli discloses “transition speed of  $X(n)[,]$ ” Applicant submits that Simanapalli does not disclose any “coefficient based on the transition speed of  $X(n)[,]$ ” as recited in new claim 36. Accordingly, Applicant respectfully requests the Examiner to consider and allow claim 36.

***Conclusion***

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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